

W5YI REPORT

Up to the minute news from the worlds of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

Dits & Bits

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★ In This Issue ★

Personal Radio Report Released
What is the DES Algorithm?
Shopping by Television Booms!
August Amateur Radio Stats
League Sponsors Art Contest
AMSAT to Hold Space Symposium
Communications Privacy Editorial
Electronics in the News!
Radio Club of America Grant
The Dvorak Typewriter Keyboard
Saga of the Class II XE2 Calls
Michigan to 20 KHz 2-Meter Plan
and much, much more!



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Personal Radio Research Study Issued

The FCC's Office of Plans and Policy released Working Paper No. 20 entitled "Alternatives for Improved Personal Communications" on September 12th. It was authored by Maryland amateur James E. McNally, Jr., WB3APV. The document carries the cover date of August 1986 ...exactly five years after the previous personal radio "think piece", "Deregulating Personal and Amateur Radio," Working Paper No. 6, by Alex D. Felker and James A. Brown, Jr.

Jim McNally, an FCC employee for seventeen years, is no stranger to personal radio. His previous FCC assignments include four years with the Field Operations Bureau concentrating in the area of CB radio enforcement, seven years with the Private Radio Bureau where he was involved with Private Land Mobile and Personal Radio Regulation and four years in the Policy and Rules Division of the Mass Media Bureau. He is currently a Senior Electronics Engineer with the Commission's Office of Plans and Policy, OPP. In addition to being a licensed amateur, he holds a GMRS license and previously a CB license.

OPP is the research arm of the Commission. Their function is to stimulate discussion and critical comment within the FCC, as well as outside the agency, on issues of telecommunications policy. The views of the various authors do not necessarily reflect the

position of the FCC and the Commission is not bound in any way to accept OPP's findings or recommendations.

The most recent document is 92 typewritten pages long and is divided into sections. Covered is personal communications in general and the Citizen's Band, GMRS and Amateur Radio Services in particular. McNally's findings include:

THE PERSONAL RADIO SERVICES....

The public's interest in two way radio communications was demonstrated by the popularity of the Citizen's Band Radio Service which reached 15 million licensees in 1979. CB radio offered poor quality service due to long distance propagation and severe congestion.

Although consideration was given to a 900 MHz personal radio service, the FCC concluded that other uses of that spectrum would better serve the public interest. The FCC said that CB radio was inadequate and that a better way was needed to meet the communications needs of the public. (2.7 million CB users are estimated today.)

The General Mobile Radio Service, numbering some 14,500 users, is the smallest personal radio service. GMRS allows personal and business communications on 8 paired 462/467

channels. Repeaters are common and its quality of service is quite excellent.

The Amateur Radio Service currently numbers some 415,000 licensees. Most amateur communications are recreational (many with a technical element) or educational in nature. Communications limitations are few and consist primarily of restrictions to ensure the noncommercial, experimental nature of the service. Since most of us are primarily interested in this service, we will devote most of our coverage in this issue to it. We will cover the other personal radio services in depth at a later time.

THE AMATEUR RADIO SERVICE....

The Amateur Radio Service was created principally as a means of personal development. Initially, amateur radio was an informal association of inventors and experimenters interested in radio as an art in itself. In a real sense, amateur radio was the "mother" of the other radio services that followed.

Amateur station and operator licenses are issued to individuals. Members of a family may not operate the amateur station equipment of another member unless they are in his or her presence. The number of amateur licensees has remained fairly constant in recent years.

VHF and UHF amateur bands are desirable for personal communications because the spectrum is similar to that used in other land mobile services and there are minimal entry barriers to the use of this spectrum. A person can cram for the Technician examination in a period of several days to two weeks.

ON AMATEUR SERVICE RESTRUCTURING

The FCC should insure that the amateur examination elements are appropriate to the types of operation that would be performed by the licensee. There have been many complaints over the years that Morse Code proficiency requirements have constituted an unnecessary and artificial impediment to fuller use of the Amateur Radio Service.

Many have questioned why a potential

amateur with a vast knowledge in the electronics field should be excluded from the service due to personal disinterest in the Morse Code. The prevailing amateur view has been that all amateurs should have at least some proficiency in Morse Code.

The FCC should verify the relevance of the currently required degrees of proficiency in the Morse Code. The fact that some 83,000 Technician Class licensees have not attained the General Class license at this time suggests that the 8 WPM differential in Morse Code proficiency may not be trivial. An impartial observer of this situation might suggest that a Morse code proficiency requirement be related to operation only in those frequency bands reserved for Morse Code operation.

Another possible explanation for questionable barriers to entry in the ARS is that those who have attained the higher license classes with some level of difficulty would naturally object to rule changes that would have the effect of making access to their operating privileges easier. This attitude, while understandable, is nevertheless unreasonable and it acts to inhibit meaningful restructuring of the service consistent with current circumstances.

Another obstacle to worthwhile reregulation may be based on the belief of current licensees that otherwise inappropriate barriers to access should be retained in order to inhibit frequency congestion.

BUSINESS COMMUNICATIONS IN THE A.R.S.

Limitations on so-called "business communications" in the Amateur Radio Service may also discourage its use for communications that facilitate personal activities, thereby further discouraging new entry.

Amateur rules prohibit the transmission of business communications except where they relate to the immediate safety of life or protection of property. Business communications is defined as "Any transmission or communication the purpose of which is to facilitate the regular business or commercial affairs of any

party." These rules have led to some confusion over what constitutes a "business communication."

The 1983 Order covering amateur business communications indicated that "Classic examples of business communications are those which deal with calling the office from an automobile by way of amateur radio in order to receive and leave business messages, or with providing a regular communications service to an employer, a local government or other entity."

However, on July 19, 1983, in a letter to Christopher Imlay, counsel to the ARRL, the FCC noting that it had received many inquiries regarding clarity emphasized that the Order "does not prohibit amateur radio operators from participating in the routine events of traditional public service activities" and that "amateur radio operators may provide communications for municipal parades, marathons, walkathons, Eye Bank activities and the like" and that while (such activities) may incidentally benefit the sponsor, their main purpose is to provide a service to the public which is the real beneficiary.

The letter goes on to include as being permissible "public service communications for neighborhood bike races, fireworks displays and the Olympic Games." It concludes by saying that "we can all agree that a businessman, who also happens to be an amateur radio operator, should not use amateur radio facilities to call his office about details that surround his business transactions. On the other hand, the same businessman should feel free to use his amateur radio station if a member of the family becomes ill, if there is a safety factor in traveling on the highway, such as the need for a tow truck, etc."

Thus, while using amateur radio to call a tow truck appears permissible, no such "safety factor" would pertain to ordering a pizza, making a motel reservation while traveling, or many other utilitarian uses of amateur radio. Yet in none of these cases would the amateur directly intend that the communications benefit a commercial entity.

Mentioning or discussing the price of a

piece of equipment, while possibly conducing to the financial gain of an amateur (although incurring a loss may be just as likely), may also be warranted as an incidental activity conducive to the overall welfare of the service, in that it may facilitate the acquisition of desired equipment. Neither would such use of the ARS appear to significantly affect its experimental nature. Amateurs should not have to resort to questionable mental gymnastics in order to rationalize essentially innocuous communications.

Of course, since the ARS is also an international service and subject to international regulations, there may be limits to the extent of its further deregulation in the area of business communications. Nevertheless, ongoing review of the rules and policies relating to permissible communications is necessary to ensure their clarity and applicability to current operating practice.

AMATEUR RADIO SERVICE GROWTH....

The Amateur Radio Service has gone through alternate high and low growth periods over the last 35 years. Since 1982, the number of licensees has increased only by about 1,100 annually and may be a third to half-way into a low growth period.

The high growth rate that took place between 1975 and 1981 coincides with the "boom years" of CB radio. Perhaps widespread familiarity with CB radio, followed by disenchantment and the search for a suitable alternative, served to stimulate interest in the ARS.

It is possible that absent the substantial but short-term interest in CB radio, the ARS might be in a 20 year period of stagnant growth. Some amateurs may view a minimal growth rate with satisfaction since it tends to limit the amount of congestion.

The potential effects of a relative decline in the number of amateurs relative to the overall population may be cause for concern over whether the public welfare is being served, since amateur radio operators represent a significant public service and disaster relief communications capability.

IN CONCLUSION....

Various classes of operator licenses in the the Amateur Radio Service is appropriate since it encourages personal development of electronic and telecommunication skills. However, not all communications in the ARS must pertain to personal development.

Recreational communications are permissible, as are many communications relating to matters of personal expediency and public welfare. The Commission's mandate to allocate frequencies in the public interest requires periodic re-examination of amateur radio regulations and policies to determine whether they continue to serve the public interest.

Certain aspects of ARS operation may require re-examination in order that it may be maximally useful as a personal radio service:

(1.) The examination elements for each license class should be reviewed to insure that required skills correlate with operating privileges. Any unnecessary requirements that may constitute a barrier to entry should be eliminated.

A partial review consistent with this recommendation is underway in PR Docket 86-161 (Amendment of the Amateur Radio Service Rules to Expand the Privileges Available to Novice Operators.) A Notice of Proposed Rule Making in response to 8 petitions was adopted on April 30, 1986.

Among the proposed privileges would be the ability to use voice emissions in certain frequency bands for the first time. The proposals are intended to reverse a trend that has seen the loss of 10,000 Novice Class amateurs (about 12% of that class) over the last two years.

(2.) The rules relating to permissible communications, particularly so-called "business communications" (including personal communications of a financial nature) should be reviewed and clarified consistent with the goal of providing for maximum flexibility consistent with the nature and purpose of the service.

While the recommendations of the Office of Plans and Policy are not binding on the Commission, it is interesting to note that the FCC apparently does put stock in them.

Many of the recommendations of "Working Paper No. 6" released in 1981 by OPP's Alex D. Felker (engineer and N4LF) and economist James A. Brown were adopted or are currently being worked on. For example: relaxation of third party messages involving eye banks, Red Cross, etc., station identification rules, use of Spread Spectrum modulation, additional authorization of digital codes other than ASCII and Baudot, control operator requirements, codeless digital class of license for computer hobbyists, expansion of Technician privileges, automatic transmitter identification systems (ATIS) ...elimination of meaningless or counterproductive rules and others were all part of the 1981 document.

● Postal inspectors showed up at Pat Sherrill's Tandy CoCo (color computer) Club meeting in Oklahoma City on Saturday, September 13th. Sherrill, N5PS, is the amateur who, after having supervision problems at the Edmond (Oklahoma) post office, went berserk and went on a killing rampage before taking his own life. (W5YI Report Vol. 8, Issue #7) Inspectors are putting together a psychological profile on Sherrill. Objective is to develop a set of behavior characteristics that might help them in the future to identify people that might be dangerous.

● Wheelchair bound, Sam (The Ham) Sayward, W1EMN, of Wolfeboro, N.H. was the subject of a feature story in the AARP (an association of retired people) Magazine last month for his work in developing a nationwide retirees ham radio network.

● John Thernes, WM4T, isn't the only one having zoning ordinance problems in the city of Lakeside Park, Kentucky. An NBC-TV "Today" show TV camera crew attended a recent public hearing after the mayor ordered a treehouse, a child's swing set with a roof and a gazebo dismantled. Even an unattached dog house appears illegal. Thernes gave a rundown of his ham antenna and tower problems at the recent ARRL Convention in San Diego, CA.

COMMENTARY ON THE DES ALGORITHM....

In our last issue we mentioned that M/A Com's Videocipher II uses the DES algorithm for its satellite programming scrambling code. Some of you have inquired about just what is the DES algorithm.

In a sentence, it is the mathematical method by which signals are encoded and not too much different than those brief cases with rotary digit locks on them. If you know where to set the number (the algorithm) the lock opens. A three number lock (zero to nine) has 1,000 possibilities (10^3). The combination is subject to "brute force attack" (that is, trying all possible combinations) but takes time. The security is plenty satisfactory for luggage. Security doors use more numbers for added security, but they too are vulnerable.

The DES algorithm was created by the National Security Agency (NSA) by modifying IBM's encryption system (code named "Lucifer") from 128 bits (1's and 0's) to 56. The National Security Agency is the super secret U.S. agency ...far more shrouded than the CIA. For years its very existence was denied. They have two major functions - signals intelligence and communications security.

Thus there are 2^{56} DES (stands for Data Encryption Standard) combinations - a number so high that "brute force attack" is near impossible. Lucifer was far more secure since it presented 2^{128} possibilities. I can't tell you how many combinations this is because I don't know any numbers that high. The banking industry uses the DES algorithm for encrypting electronic funds transfer.

To increase security, M/A Com tied their use of the DES algorithm to the video transmitted. The code constantly changes as the picture changes. In theory no one could possibly come up with the right combinations that are shuffled several times a second!

An interesting sidenote is that NSA is now de-emphasizing DES as being vulnerable to "cryptoanalytic" attack. Rumors are that NSA can now fairly easily decipher DES-encrypted text without the key due to the existence of a secret "trap door" - some sort

of a numerical regularity.

"Super computers" probably have the speed necessary to systematically crack DES. The Soviet Union has developed a "fifth generation" computer capable of simulating artificial intelligence and handling 50 million operations per second. According to the Moscow Institute of Control Systems, the PS-4000 is intended to be used for "information searching" and is slower than existing computers in mathematical and logical tasks. Walter Deeley, retired NSA deputy director recently told Science magazine that he "wouldn't bet a plugged nickel on the Soviet Union not breaking DES."

Hackers are those curious individuals that just refuse to believe something can't be done. They find the DES algorithm an exciting challenge. The world owes a lot to the run down, disheveled, defamed hacker. In actuality most of the great strides in computers are because of them. IBM hires them and assigns them to "entrepreneurial units" - a smart move.

Did you know that the Apple I's inventors, Steve Wozniak and Steve Jobs started their careers as manufacturers of underground telephone "blue boxes." Wozniak, a confirmed phone phreaker, designed the gadget to crash AT&T's long distance system. The box emitted tones so accurate it fooled AT&T's switching system and opened up long distance telephone circuits free of charge? Jobs later became a programmer for Atari and Wozniak an engineer for Hewlett-Packard. They built their first computer together with "liberated" parts from Atari and Hewlett-Packard.

Apple's first manufacturing facility was a spare bedroom in the Jobs home where they assembled 50 machines for sale to the Byte Shop. Another hacker, Steve Leininger, a moonlighting Byte Shop employee was the designer of what was to become the TRS-80 Model I using the Zilog Z-80 chip. Hackers just don't believe things can't be done. In 1980, Jobs and Wozniak "went public" with Apple Computer and were immediately worth \$400 million. Their initial capitalization was \$1,300 raised by the sale of a Volkswagen van and a programmable calculator!

HOME SHOPPING MANIA PROLIFERATES!

The biggest thing going today in TV isn't entertainment. It is advertising bargains and teleshopping! It is almost unbelievable what has happened. The concept is scarcely a year old and already it is being termed a potential billion dollar industry! Everyone, it seems, is jumping on the band wagon.

Cable shopping is scoring big because more and more people are spending less time shopping at traditional retail outlets. The shopping networks are also popular with businesses who find they can reach relatively large numbers of people for relatively small amounts of money on a per home basis.

Transmitting via satellite, teleshopping is the marriage of 800 toll-free telephoning, credit card billing and the ready availability of slots on many of the nations cable TV operations. The cost to sell is low since there is no store overhead. Jewelry and consumer electronic items seem to be the biggest sellers. The field is getting crowded.

There soon will be four major 24-hour shopping services. Home Shopping Network (HSN, serving 15 million viewers); Cable Value Network (CVN - 20 million), the Quality Value Convenience Network (QVC starts programming in November with 3 million potential subscribers) and Telephone Auction (with 80 million.) Royalties (territorial commissions) are paid to cable operators. Profit margins are around 20%. At least one cable firm is starting their own shopping service, Sky Merchant.

Home Shopping Network, Clearwater, Florida, has added a second channel featuring higher priced, innovative merchandise. TV shopping debuts to Canada in November. HSN has licensed their program format to a Canadian firm. Another shopping service getting set to operate from Houston, Consumer Discount Network, will also have two services, CDN-1 and CDN-2.

Some cable shopping services specialize. Crazy Eddie's Home Entertainment Value Network sells only consumer electronics. C.O.M.B. features only close out/liquidated goods. QVC will market only new products.

Tel-Shop features only brand name goods. Some services are offering equity ownership to affiliating cable operators. Sears, which has just launched its own Discovery credit card, is also set to join the fray.

And there are others! The Video Shopping Mall, Let's Go Shopping Network, American Shopping Channels, and Weekly Shopping Network among them. VTV (Value Television) makes their first appearance at year end.

Biggest problem for the emerging home shopping industry is the lack of available cable channels. Less than half of the nation's cable systems have excess channel capability. Another difficulty for shopping firms is the limited number of available transponders on satellites. Due to coverage considerations, only Galaxy 1, Satcom III R and Satcom IV are usable. To get around this, one enterprising firm has started a VCR catalog. Video Log offers electronic shopping catalogs on videocassettes and boasts 100,000 members.

Now comes word that over-the-air broadcast TV shopping will soon be upon us! Home Shopping Network has been doing some shopping of their own. They have been buying UHF television stations. This will bring in additional millions of television shoppers who cannot be reached by cable hookup.

Last month Home Shopping Network bought six television UHF stations. They plan to buy eight more. HSN is having a big impact on the value of UHF television stations. They are paying top dollar for them. Eventually HSN says they intend to involve themselves with DBS, direct broadcast satellites. They hope to become the fifth national network behind NBC, ABC, CBS and the new Fox (Murdock) TV network.

The future looks rosy for home shopping - particularly as 2-way interactive technology develops. Home Shopping Network went public in May at \$18. The stock went up to 133 by August before retreating. QVC Network went public on September 5th at 10 and soared to 22 the same day! Some say it is a fad but obviously many people - particularly those in the investment community - don't think so. Everybody wants in on the action.

W5YI REPORT.....

Page #7
 October 1, 1986

AUGUST AMATEUR LICENSING STATISTICS...

	August 1985	1986
New First Time Amateurs	1,297	1,377
Novice Class Upgrading	1,002	707
Technician Class Upgrading	382	216
General Class Upgrading	333	229
Advanced Class Upgrading	235	176
Total Amateurs Upgrading	1,952	1,328
Amateurs Failing to Renew	2,817	1,829
Change in Amateur Census	-1,520	+884
Month End Census	411,580	421,077

Extra	Advan	General	Tech	Novice	TOTAL
37793	97759	117189	82867	75972	(85) 411580
9.2%	23.8%	28.5%	20.1%	18.4%	
40455	98294	116944	86025	79359	(86) 421077
9.6%	23.3%	27.8%	20.4%	18.9%	
Club Stations			2,266		2,176
Military Recreation			166		148
R.A.C.E.S.			357		347
Total Active Stations			414,369		423,748
Increase					2.3%

AMATEUR APPLICATIONS PROCESSED/FCC

1982	1983	1984	1985	1986
12,965	13,409	10,751	10,234	7,163

It is currently taking 16 days to process an amateur application received in good order from a VEC. Add another two or three weeks for the FCC Form 610 to go through normal VE/VEC channels.

● The ARRL is sponsoring a "Youth in Amateur Radio" national art contest. Prizes will be awarded and winning entries (and others deemed appropriate) will be forwarded to the worldwide competition sponsored by the ITU in Geneva. Entrants must be sponsored by an ARRL member. Entry forms from: ARRL, Dept. "Y", 225 Main St., Newington, CT 06111. ARRL members may also enter the competition. Entries from three age groups (Group 1 - ages 8-12, Group 2 - ages 13-15 and Group 3 - ages 16-18) must be received at ARRL no later than February 1, 1987. Photography, drawings, paintings and other illustrations no larger than 11" x 14" become the property of the League.

● The "Illegal Eagle One" is still being mail order marketed. The latest outfit to sell the 440-450 MHz ham band transceiver is: Commtron, 625 Academy Drive, Northbrook, IL

60062 - toll free 1-800-323-4228. They call it a "UHF Hand-Held CB Radio - 3 channels within 10 MHz band. 200 mW clean FM output suitable for local services and repeater access." No where in the catalog advertisement does it say you need a Technician class amateur license! Price is \$119.90 in lots of 3. \$124.90 single units. Commtron also has many outlets throughout the country. Wonder how many CBers are using them?

● AMSAT will hold its Fourth Annual Space Symposium and Annual Meeting at the Dallas/Ft. Worth Airport Hilton Hotel on November 7-9. Speakers at the Saturday symposium include experts from around the world who will address the latest in OSCAR news including FO-12, Phase 3C and the new Phase 4 Program. Featured speaker is Dr. Martin Davidoff, K2UBC, satellite expert and author of the popular Satellite Experimenter's Handbook. Lots of prizes! Additional details from AMSAT Headquarters, 301-589-6062.

● The AZ1ARU and AZ2ARU through AZ12ARU call signs that you will be hearing this month are Argentine amateurs commemorating the October IX General Assembly of IARU Region 2 to be held in Buenos Aires.

● How Not to Protect Communications appeared in a September 13, 1986, New York Times editorial. Cellular engineer, Robert Jesse, among other things, said "...cellular car telephone transmissions and other two-way radio communications enter our homes and pass through our bodies. Cellular phone calls, in fact, can be received by most TV sets on UHF channels 80-83. If radio is public by the laws of physics, how can a law of Congress say that cellular communications and other forms of radio are private?" He concludes... "If Congress was serious about privacy in the communications age, it would scrap the Electronic Communications Privacy Act and begin anew. ...relief will come only from research and more technology, not wishful legislation." Jesse maintains that the EPCA will have no deterrent effect and not increase the privacy of cellular phone calls or other broadcasts. "Worse, the Act would lull the public into a false presumption of privacy."

● Apple Computer introduced a new fully compatible Apple II-GS with 256K RAM and 128K ROM on Sept. 15th at \$999. More later.

- A lower Manhattan (New York) teacher who decided to use amateur radio as an incentive for students to learn English has been awarded a \$500 Grants-in-Aid award by the Radio Club of America. The junior high teacher had realized much success with the concept. Students scored higher in reading than other students and the problem of absenteeism dropping to near zero. PS22's ham club had been the subject of a WNBC news report.
- Satellites are being developed that have multiple directional antennas. Each antenna will serve overlapping U.S. land areas. Higher effective power will result since the beams will focus their signal rather than cover a wider area. Side benefit is lower earth station costs and smaller antennas. Objective is to provide a cost effective method for companies to cut telephone and data transmission costs by bypassing local telcos.
- Business Week reports that the Administration is upset that a Cray 1 supercomputer may be used by Soviet scientists for military purposes or breaking secret codes. It seems that the Cray is being sold to a university by Britain's Energy Department for dial-up use by Europe's scientists. U.S. wants controls on what programs are run and who runs them.
- Attorney General Meese (in the 1,960 page report of his Commission on Pornography) wants FCC to regulate and impose sanctions against Dial-a-Porn services and cable and satellite programmers who transmit sexually oriented material.
- U.S. intelligence has discovered two new powerful Soviet phased-array radar installations that may possess "battle management" capability. Six others had previously been identified. The network could violate the 1972 Anti-Ballistic Missile Treaty.
- Metromedia sold their television business three years ago to enter the emerging cellular mobile telephone field. Now Metromedia has sold their paging and cellular holdings to Southwestern Bell Corp. for \$1.65 billion - realizing nearly a \$1 billion profit! Southwestern Bell bought the extensive cellular holdings as a means to expand nationwide.
- A federal court ruled in February that regional BOC's could buy cellular-phone franchises outside their operating areas. The question is what is Metromedia going to do with all their cash?
- Zenith's new television sets will be sort of revolutionary! The top of the line (\$1,400-\$1,700) has high-fidelity sound (designed by MIT's acoustic wizard Amar G. Bose), and digital processing permitting such features as zoom focusing and TV pictures superimposed on other video pictures. Zenith is the first to use the Bose sound system. Also included is a built in decoder for World System Teletext.
- Will the Dvorak typewriter keyboard ever catch on? Present QWERTY arrangement requires 57% keystroking with the left hand although most typists are right handed. Only 30% of all typing is done on the home row keys and the two weakest fingers (the ring finger and pinkie) do most of the heavy work. The QWERTY layout came about in 1868 as the result of inventor Christopher Sholes having to come up with a means of preventing certain typing keys from colliding with each other. He didn't think about overworked pinkies because he only intended two finger typing! The Dvorak system (patented 50 years ago) is based on finger movement and stress on individual fingers. The right hand does 56% of the typing, strongest fingers get the heavy work and 70% of the typing is done on the home row. A full time typist covering 15 miles daily on a standard typewriter would cover only slightly more than a mile with a Dvorak keyboard - a 93% reduction. A microchip or software could easily change any keyboard to the Dvorak layout. Still we toil at our terminals.
- You might want to check out your insurance coverage on your "add on" radio equipment - both amateur and cellular! Some insurance companies don't cover electronic equipment if it is removable. Insurance coverage wasn't a problem until CB radios came out and people starting stashing them under the seat. Now many insurers require permanent in the dash installation and consider removable radios as personal property. Many companies have "riders" offering additional coverage.

W5YI REPORT.....

Page #9

October 1, 1986

• Even though the U.S. Air Force denies that the radar invisible top-secret F-19 Stealth Fighter exists, toy model manufacturer Testor Corp. is marketing a 1/48th scale model at \$9.50. The plastic model industry has a history of producing accurate replicas of secret military hardware. Reportedly, Russian embassy and FBI have both bought the kits.

SAGA OF THE CLASS TWO XE2 CALL SIGN

Through a joint effort on the part of gringo and Mexican hams, Mexico has been issuing "reciprocal-type" courtesy XE2 call signs to travelers in Mexico namely Baja California for the last four months. Mariners have been taking advantage of this so that they can now legally operate amateur radio from their boats off and docked in Mexico.

Actually American hams have been operating from their yachts in Mexico for years. They would just say they were off shore when in reality they were in Mexican territorial waters. Getting a Mexican amateur license was usually out of the question because you needed more than a conversational grasp of Spanish to pass the Mexican ham test.

Communications, particularly the capability to make a personal telephone call, from a boat at sea is very important to a mariner and amateur radio legally allows this capability.

XE2 ham tickets are issued to hams of foreign countries living or visiting Mexico. Any amateur radio license, Novice and Technician included, is accepted by the Mexican Secretary of Communications and Transport (SCT) and a Class Two Mexican operators permit is issued.

The permit offers full Class Two Mexican Radio Afficionado privileges regardless of the restrictions placed on the ham by the license country of origin. The only restriction the Class Two permit has is a power maximum of 250 watts PEP. The top-of-the-line Class One allows 1,000 watts.

It also allows U.S. and Canadian "under-licensed" hams to use telephony on the entire spectrum allocated to and controlled by Mexico. The phone spectrum is even broader than

that allowed American Extra-Class amateurs! The Mexican government had no idea that being a "good neighbor" would rankle some stateside hams, but it has.

Mexico is not alone with this policy. Many other countries do the same thing. The U.S. does not. U.S. reciprocal rules allow alien amateurs operating terms and conditions issued to the alien amateur by his government but not to exceed those of the U.S. Extra Class. (§Part 97.311)

An interesting sidenote. Amateurs from the United Kingdom can't operate in the U.S. 2-meter 146-148 MHz band where we have most of our repeater operation because this spectrum is not available to them in England. (We have a VE team in London that administers U.S. tests for American licenses to Britons who want to operate the entire 2-meter band while visiting the United States.)

Reportedly, an increasing number of mariners are obtaining U.S. Novice licenses (which can be obtained through a single General Class level friend) and turning them into Mexican XE2's with unlimited amateur privileges and using the XE2 call to pass phone patch traffic on various maritime net frequencies back to the United States.

Some HF maritime ham networks (such as the 7238.5 kHz based California/Baja Net) are now requiring that XE2's also use their stateside call sign so net controllers can screen out under-licensed operators to prevent them from passing HF voice traffic which requires at least a General Class license. This has caused a lot of dissension in the amateur community. There have been incidents of name calling and jamming. The XE2's maintain that what they are doing is perfectly legal.

The maritime nets are now breaking into two separate nets. One faction agrees that Generals can talk to Generals and higher - and not to Novices. Other nets have sprung up (such as the 7282 kHz Chabasco Net) made up primarily of under-licensed XE2 operators who use General Class spectrum to talk back to the United States from Mexico on voice grade frequencies.

Phone patches to, from and within Mexico are illegal if the local phone system is available. XE2's are interpreting telephone service as being unavailable from a yacht. Third party traffic between Mexico and the United States is, of course, legal.

An effort is also underway to get the under-licensed XE2 amateurs upgraded to at least General Class. The SANDARC-VEC has a VE team based in Baja. When mariners get a taste of ham radio, many want to go on to higher classes and, in many cases, upgrade.

While the FCC does not want to get involved, at the recent FCC ARRL forum in San Diego, Ray Kowalski, Chief of Washington's Special Service Division, did indicate that he has received a lot of comments regarding this and will look into it. The question of possibly illegal phone patches from Mexico is being judged as a Mexican problem.

Amateurs that oppose the under-licensed operation from Mexico fear that it could cause a major change of thinking on the part of Mexico. The massive amateur radio effort during the Mexico City earthquake has fostered a closer tie with the United States and amateur radio. Reciprocal licensing of some sort is apparently imminent. There could be a change of thinking. Mexico might not be pleased when they hear about possible misuses of their XE2 courtesy calls.

The XE2 call signs can be used in international waters off California. Some wonder how long will it be before the Class Two'ers do what American amateurs have done for years in Mexican waters - saying they were off shore when in reality they were not. The controversy continues.

MICHIGAN GOES TO 20-KHZ BAND PLAN....

Repeater owners in Michigan have opted to go to the 20 kHz 2-meter band plan between 146 and 148 MHz. Two votes on the issue were taken. A postcard poll of repeater trustees throughout the state resulted in 58 in favor versus 18 to remain on 15 kHz centers. Over half of the owners responded. Members present at the September 13th general

meeting of the Michigan Repeater Council held in Lansing voted 26 to 6 in favor of the 20 KHz. plan.

States surrounding Michigan say that they have no plans to go to 20 kHz. centers. To avoid potential interference, the Michigan Repeater Council has been involved in a very involved and lengthy process of working out the repeater moves. Machines in the other states were treated as co-channel repeaters. Three different drafts of the rechannelization scheme were developed.

Rod Moag, W0NDS, of Ann Arbor, newly elected chairman of the Michigan Repeater Council, said that they had received "good cooperation from neighboring states, particularly Wisconsin and Ohio. We have been able to foresee a lot of the problems on paper before they actually happened on the air." Moag succeeds Corwin Moore, WB8UPM, as the new Council Chairman.

Implementation of the new band plan will take place this fall. The repeaters that can move without incurring or suffering interference will move as quickly as possible. A ten day time window beginning at Thanksgiving Day has been set for the others. All repeaters will be operating on the new 20 kHz plan by December 7th.

Any potential problems could come from the "upper peninsula" where 13 repeater owners are reported organizing. Being far removed from the rest of the state, they have not taken an active part in the debate which has gone on for the past two years. There are those that feel that these repeaters should be part of the Wisconsin coordination plan.

A side benefit of the new 2-meter 20-kHz channelization plan is that it allows Michigan to "wipe the slate clean and start over." Some present co-channel repeaters are to close together and interference problems within Michigan and adjoining states have resulted. "It allowed us to reshuffle the repeaters based on the number we have in operation today and work out a much more coherent plan that would benefit everybody. It gives us a chance to improve most situations," Moag said.